- hydatid, leishmaniasis, Tropical, enteric, IEC, ARF, HIV, B,C, TB, Malaria, Dengue, Pneumonia, Covid, Brucellosis, IMN

HYDATID CYST

- zoonotic
- larval tapeworm disease
- Sheeps, dogs

CYCLE

- human ingest eggs - penetrate lamina propria - via lymphatics it is transported to liver, pancreas, lungs

FEATURES

- May be asymptomatic for years
- gradual pressure signs - pain, anorexia, Hepatomegaly
- sudden rupture signs of peritonitis
- rupture can also cause ige mediated hypersensitivity that can b life threatening

INVESTIGATIONS

1. CBC

- Eosinophilia

2. LFT

- transaminases high
- ALP high

3. Serology

- ELISA for screening
- Imunoblot for confirmation

4. Imaging

- USG is initial and for screening
- CT is confirmatory and best to differentiate cyst from abscess
- Serology is not sensitive or specific

TREATMENT

1. Pharma

- High dose albendazole x 3 months

2. Surgical

- PAIR - Puncture, aspiration, Injection (with hypertonic saline or erhanol), Re aspiration
- and sterilization with Alcohol or hypertonic saline

LEISHMANIASIS

RETICULOENDOTHELIAL CELLS

- Fever, splenomegaly, Hepatomegaly, lymphadenopathy, Pancytopenia

INTESTINAL

- Diarrhea, malabsorption, Low albumin

CAUSES

- caused by sandflies that transmit protozoa leishmania donovani
- stages include Amastigotes and promastigotes in sandfly
- after a bite of sandfly, protozoa enters host and goes into phagolysosomes
- if patient will manifest cutaneous or visceral disease depends upon what type of phagolysosomes are effected
- incubation is few weeks to 6 months

1. Cutaneous

- when skin macrophages are full of Amastigotes - they burst and this effect neighbouring macrophages
- – – Papules or nodules

2. Mucocutaneous

- Often occurs 2-3 years after cutaneous
- oral and nasal mucosa is involved

3. Visceral

- in visceral type, spread is haematogenous to mononuclear cells of Liver, Spleen, marrow, nodes and intestine
- visceral leishmaniasis has
- – – Fever
- – – kala azar = greyish discolouration of skin
- – – splenomegaly
- – – hypergammaglobulinemia
- – – pancytopenia
- – – with disease progression, jaundice and ascites can develop
- – – seasonal peaks in spring
- – – in some cases, after treatment of visceral leishmaniasis, patient develop cutaneous leishmaniasis – *POST KALAZAR DERMAL LEISHMANIASIS*

DDS

- – Fever + Splenomegaly + Hepatomegaly +/- Ascites + Lymphadenopathy + Pancytopenia
- typhoid fever
- tuberculosis
- brucellosis
- malaria
- hematologic malignancie

HOW WILL YOU INVESTIGATE

1. CBC
2. LFTs
3. low albumin, high gamaglobulins
4. Histopathology of involved tissue and micro culture techniques have better sensitivity
5. direct agglutination is 95 sn, 85 specific
6. PCR and NAAT are used more now because they are more sensitive and specific
7. serology tests are not very sensitive
8. Antibody against anti rk39 antigen

TREATMENT

1. Cutaneous

- often resolves spontaneously in 2-5 years
- intralesional pentavalent antimonal – sodium stibogluconate
- alternative – miltefosine and amphotericin B
- heat or cryotherapy is lesion more than 5cm

2. Mucocutaneous

- Sodium stibogluconate
- Ketoconazole, Itraconazole either alone or in combination with amphotericin

3. Visceral

- antimony sodium stibogluconate
- amphotericin
- paromomycin
- oral miltefosine

TROPICAL SPLENOMEGALY

HYPERREACTIVE MALARIAL SPLENOMEGALY

- in hyperendemic malarial area
- gross splenomegaly
- exaggerated immune response to repeated malarial infection

1. massive splenomegaly
2. Hepatomegaly
3. anemia, or also pancytopenia due to hypersplenism
4. high IgM levels
5. Malarial parasites are scanty or absent
6. increased ratio of CD41 T cells: CD81 T cells

MAJOR CRITERIA

1. Gross splenomegaly 10 cm or more in adult for which no other cause can be found
2. high antimalarial antibodies
3. High serum IgM
4. Clinical and immunologic responses to antimalarial therapy

- – – (Regression of splenomegaly by 40% by 6 months after start of therapy)

MINOR CRITERIA

1. Liver biopsy shows sinusoidal lymphocytosis, hyperplasia and aggregates of IgM in Kupffer cells
2. Lymphocytic proliferation
3. Hypersplenism
4. Normal cellular and humoral responses to antigenic challenge excluding plasmodium
5. Familial occurrenc

HOW WILL YOU INVESTIGATE

1. CBC
2. Bone marrow
3. Liver Biopsy
4. Hemolysis labs

COMPLICATIONS

- Severe infections
- Hemolysis
- Splenic rupture

TREATMENT

1. In endemic area

- chemoprophylaxis should be taken
- Proguanil 100 mg/day plus chloroquine 600 mg weekly
- Folic acid 5 mg/day
- – – atleast for couple of konths, may extend to many years

2. In non-endemic area

- Treatment of malaria: short course (with chloroquine)
- Patients who continue to be exposed to malaria-endemic regions require intermittent therapy or possibly lifelong treatment
- Splenomegaly and anaemia usually resolve over a period of months with treatment
- In some cases refractory to therapy, clonal lymphoproliferation may develop and can then evolve into a malignant lymphoproliferative disorder

3. Splenectomy

- in refractory cases
- if features of hypersplenism
- if compression symptoms of splenomegaly

ENTERIC FEVER

- 6 weeks incubation
- then gradual onset

1. Fever
2. fatigue
3. headache
4. Malaise
5. abd symptoms (pain, nausea, diarrhea, constipation)
6. Dry cough, Sore throat
7. Myalgias
8. Proliferation of lymphoid ➡️ constipation
9. Endotoxin-mediated necrosis ➡️ intestinal bleeding, perforation, or bacteremia
10. The total white count, lymphocytes, platelets, and neutrophils begin to drop with the onset of symptoms.

CLINICAL

1. Fever
2. Bradycardia
3. Rose rash over trunk
4. Jaundice
5. Pallor
6. Hepatosplenomegaly

COMPLICATIONS

- Sepsis
- hepatitis
- Pancreatitis
- pericarditis
- meningitis
- perforation
- Osteomyelitis

WASH

- Water
- Adequate sanitation
- Hygiene

CAUSES

- Salmonella Typhi
- Salmonella Paratyphi

RISK FACTORS

- immune host factors
- contact exposure
- travellers
- WASH

HOW WILL YOU INVESTIGATE

1. Culture

- Blood
- bone Marrow
- Intestinal secretions

2. Widal Test
3. NAAT and PCR

RESISTANCE

1. Fluroquinolones
2. MDR (to all 3 first line agents)

- ampicillin
- chloramphenicol
- co-trimoxazole

3. XDR

- chloramphenicol
- ampicillin

- co-trimoxazole
- ciprofloxacin
- 3rd generation cephalosporins

TREATMENT

1. Mild cases

- Azithromycin
- – – 1gm on day 1, 500mg OD for next 7 days

2. Severe cases

- Ceftriaxone
- – – 1gm iv BD for 10 days

3. XDR

- Carbepenem + Azithromycin
- or Carbepenem alone

4.

IEC

NATIVE VALVE

- S aureus
- Group B strept
- subacute (alpha Hemolytic strept, enterococcus)

PROSTHETIC VALVE

- early (aureu, candida)
- late - same as native

IVDU

- Aureus , MRSA
- Pseudomonas
- Fungal

- HACEK

DIAGNOSIS MAJOR CRITERIA

- culture (aureus, virudans, HACEK group)
- Echo (oscillating vegetation) or new regurg

MINOR

1. predisposing factors
2. temp 38
3. Vascular Phenomenon

- arterial emboli
- septic pulmonary infarct
- ICB
- Janeway
- Mycotic aneurysm

4. Immunology phenomenon

- Nephritis
- osler
- roth
- RA factor

5. Microbiology

- culture + but not clasical

COMPLICATIONS

- – – AR and CCF most common complication
- then arterial emboli
- MI
- Pericarditis
- arrythmia
- Regurgs
- CCF
- ABSCESS
- emboli
- Stroke
- Glomerulonephritis

IEC PROPHYLAXIS

- **WHICH Groups**

1. h.o IEC
2. Prosthetic valve
3. transplant and now regurg valve
4. congenital

- Unrepaired cyanotic
- repair unsuccessful
- repair successful (first 6 m)
- **When**
- all procedure with Mucosal handling (dental, biopsies etc)
- **What**
- Oral amoxi
- iv ampicillin or Ceftriaxone
- – – allergic
- oral azithromycin
- iv Ceftriaxone or azithromycin

ARF

DD

1. Gonococcal
2. Sle
3. stills
4. Whipple
5. Wegener

CASES

- carditis (murmur, enlarged heart, CCF, Effusion)
- Arthritis (good response to high dose aspirin,
- Subcutaneous
- erythema marginatum (non purpuric non painful)
- Sydenham (valproate
- (polyarthralgia, Fever, PR interval, ESR/CRP)

+ EVIDENCE OF STREP INFECTION

THROAT CULTURE OR RAPID ANTIGEN

HIGH ASO

LABS

- Rapid Antigen testing
- throat swab culture
- blood culture (to rule out IEC, Gonococcal, sepsis)
- Aso titre
- Acute phase reactants (esr, crp)
- ECHO ECG CXR

TREAT

1. strep infection
2. aspirin for arthritis (steroid if refractory
3. No carditis (5 yr or 21 age)
4. Carditis

- no valve damage (10 yr or 21 age)
- Moderata valve (10 yr or 40 age)
- Severe valve (lifelong)

WHAT

- im .. benzathine 1.2 million 3-4 weekly
- Oral Penicillin 250mg BD
- RARELY Sulfadiazine OD

LYMPH NODE VARIETIES

1. Stony hard (malignancy, mets)
2. firm, rubbery (lymphoma)
3. soft (infection, inflammation)
4. Fluctuant (supurative)
5. Matted (TB, sarcoid, malignancy)
6. Rubbery (Normal, lymphoma)

- Rubbery feels soft, painless, and moves away when pressure applied)

HIV SEROCONVERSION

CASE DEFINITION

- CD4 below 200 or 14%
- HIV + and Aids defining illness (PCP, CNS Lymphoma, CMV Retinitis)
- HIV +ve and illness that can occur in immunocompetent but is more common in immunocompromised (TB, cervical cancer)
-
- symptomatic in 60-80% of patients
- glandular fever type illness. The presentation may mimic glandular fever
- though the pharyngitis associated with acute HIV is usually more severe and a rash only occurs in glandular fever when ampicillin has been given.
- Increased symptomatic severity is associated with poorer long term prognosis.
- It typically occurs 2-12 weeks after infection
- The time from exposure to onset of symptoms is usually 2-4 weeks, but the incubation may be as long as 10 months in rare cases.

RISK OF TRANSMISSION

- Needle stick - 0.5%
- shared needle - 1%
- Blood transfusion - 95%
- Vertical - 15-40% if mother was not taking ART
- – – ✓ *(C-Section, ART for mother during pregnancy, for baby after delivery, avoid breast feeding — these measures reduce risk of transmission)* ✓
-

FEATURES

- ✓ *(B Symptoms)* ✓ Fever, Night sweats, Weight loss
- Anorexia, Nausea
- sore throat
- maculopapular rash
- lymphadenopathy
- malaise
- myalgias and arthralgia

INVESTIGATIONS

- – – ✓ HIV RAPID ANTIGEN TEST ✓ – Not a first line test but in some situations can be done for quick screening, and if positive, then further tests are needed.

1. FOURTH GENERATION ANTIGEN/ANTIBODY IMMUNOASSAY

- Also picks P24 Antigen
- may be false positive by Elisa
- then western blot is good. it has low false positivity

2. HIV-1/HIV-2 DIFFERENTIATION IMMUNOASSAY
3. VIRAL LOAD (NUCLEIC ACID TEST)
4. PCR
5. Flow cytometry for CD4
6. CBC - Anemia, leukopenia, Thrombocytopenia, High IgG, high cholesterol

GRADING

- – CD4 below 200, or any AIDS defining illness is AIDS

AIDS DEFINING ILLNESS (CATEGORYC)

1. Esophageal candidiasis
2. Cryptococcal meningitis
3. Chronic cryptosporidial diarrhea.
4. Cerebral toxoplasmosis.
5. CMV retinitis or colitis
6. Chronic mucocutaneous herpes simplex.
7. Disseminated Mycobacterium avium intracellulare (MAI)
8. Pulmonary or extrapulmonary tuberculosis.
9. Pneumocystis jirovecii (carinii) pneumonia.
10. Progressive multifocal leucoencephalopathy.
11. Recurrent non-typhi Salmonella septicemia.
12. Extrapulmonary coccidioidomycosis.
13. Invasive cervical cancer.
14. Extrapulmonary histoplasmosis.
15. Kaposi’s sarcoma.
16. Non-Hodgkin’s lymphoma (including Burkitt’s lymphoma).
17. Primary cerebral lymphoma.

CD4

1. Below 350 - opportunistic - TB, Herpez, Kaposi
2. 100-200 - esophageal candidiasis and PCP
3. Below 100 - Toxoplasmosis, Cryptococcosis

- – – MC CNS manifestation of HIV - multiple ring enhancing lesions
- – – also EBV - leading to B cell lymphoma

4. below 50 - Mycobacterium avium complex, CMV Retinitis, CNS Lymphoma, histoplasmosis

CD4 AND PROPHYLAXIS

1. Less than 200

- PCP – TMP-SMZ alternate days or 1 od - *(stop when above 200 for 3 months)*
- or DAPSONE 50 OD or 100 alternate day

2. less tha 150 - histoplasmosis - Itraconazole 200mg OD – stop when above 150 for 6 months
3. Below 100

- TOXOPLASMOSIS, Antigen +ve
- TMS-SMZ OD, (or PYRIMETHAMINE-DAPSONE OD + LEUCOVORIN WEEKLY) — *(stop when count 200+ for 3 Months)*

4. less than 50

- MAC – Azithro 1200 weekly (or Clarithro 500 BD) — *(Stop when above 100 for 3 months, or when ART started)*

PREGNANCY

1. Mode of delivery - C section
2. Bottle feeding
3. Mother start ARVT from 24-28 weeks and continue
4. if mother copies less than 50 then baby is given Zidovudine, otherwise triple therapy – both duration is same —– 4 to 6 weeks
5. Recommended regime for mother - DUAL NRTI + DOLUTEGRAVIR

MANAGEMENT

AIM

1. Reduce the viral load to an undetectable level for as long as possible
2. Improve the CD4 count to > 200 cells/mL
3. Improve the quantity and quality of life without unacceptable drug-related side-effects or lifestyle alteration
4. Reduce transmission

PRE EXPOSURE PREVENTION

- Tenofovir disoproxyl fumarate 300 + Emtricitabine 200 – 4 tablets in total (2 Tabs 1 day before, 1 tab after 24H, last after 48H)

NEEDLE STICK

- Tenofovir disoproxyl fumarate 300 + Emtricitabine 200 + DOLUTEGRAVIR 50

PREGNANCY

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EDUCATION

1. Dietary and nutritional advice should be given
2. Advice on smoking, alcohol, drug misuse and exercise should be given.
3. Proper advice on reducing the risk of HIV transmission including sexual practice must be provided
4. Psychological support is a must for the patient, family, friends and caregivers
5. Information about childbearing must be discussed.

HAART = Atleast 2 NRTI + 1 of PI or NNRTI

HIV TREATMENT

1. NRTI
2. NRTI
3. Non NRTI
4. PROTEASE INHIBITORS
5. INTEGRASE INHIBITORS (Inhibit viral enzyne integrase which is needed for viral multiplication)
6. FUSION INHIBITORS (blocks HIV envelope fusion with cell membrane)
7. ATTACHMENT INHIBITORS (binds to virus envelope near to site with which virus would attach to CD4)
8. CAPSID inhibitors

- – PREFERRED INITIAL REGIME – √ 1 INTEGRASE INHIBITOR (DOLUTEGRAVIR) + 2 NRTIs (TAF or TDF + EMTRICITABINE or LAMIVUDINE)
- – 2 pill regime – only approved regime is √ DOLUTEGRAVIR + ABACAVIR
- – *(HAART = Atleast 2 NRTI + 1 of PI or NNRTI)*

RESISTANCE CASES

- Choose atleast 3 drugs from two classes to which there is no resistance

NUCLEOSIDE ANALOGUE REVERSE TRANSCRIPTASE INHIBITORS

- lamivudine (3TC)
- emtricitabine (FTC)
- Zidovudine
- – – peripheral Neuropathy, Anemia (ZIDOVUDINE - Myositis, pancytopenia)

NUCLEOTIDE REVERSE TRANSCRIPTASE INHIBITORS

- TENOFOVIR AF
- TENOFOVIR DF

NON NUCLEOSIDE ANALOGUE REVERSE TRANSCRIPTASE INHIBITORS

- Nevirapine
- Efavirenz
- Etravireline

- Rilpivirine
- – – *(acute Hepatitis, Rash, hypersensitivity)*

PROTEASE INHIBITORS

- Ritonavir
- Indinavir
- Atazanavir
- Lopinavir
- – – *(DM, hyperlipidemia, renal stones)*

EARLY INHIBITORS

- Enfuvirtide

INTEGRASE INHIBITORS

- DOLUTEGRAVIR
- RELTAGRAVIR

ATTACHMENT INHIBITORS

- FOSTAMSAVIR

CAPSID

- LENACAOAVIR - loading with 2 oral doses, the im injection after 28 weeks

RX MONITORING

- Clinical history and examination
- Weight
- HIV viral load
- Lymphocyte subset
- Full blood count
- Liver and renal function
- Fasting lipid profile
- Blood glucose.

1. MONITORING of COMPLICATIONS

- – ✓ Cytopenias, Hepatitis, Renal dysfunction, DM, Pancreatitis, Rash, Myosotis, ✓
- Every 2-4 weeks initially, and when regim and dosing stable, then every 3-6 Month
- CBC, LFT, RFT, GLUCOSE, CXR

2. TREATMENT RESPONSE

- 2-4 weeks after starting ART and then 3-6 Monthly
- Viral load - should decrease 100 fold in 1 month
- CD4 - improvement timeline may vary. and when count above 500 then monitoring is optional

POST EXPOSURE PROPHYLAXIS

- 28 Days LET
- (Lopinavir, EMTRICTABINE, TENOFOVIR)

MAC

- CD less than 50
- start REC (clarithromycin 500 BD, Ethambutol 15mg/kg OD, Also add rifabutin 300 OD)

NHL

- R-CHOP

HIV DIARRHEA

1. Cryptosporidium
2. MAC

HIV NEPHROPATHY

- Nephrotic proteinuria
- Kidneys large
- FSGS

1. √ CNS

TOXOPLASMOSIS

- CNS - *Headache, focal deficit, seizures, altered sensorium*
- – – CT Brain – Multiple ring enhancing lesions (usually peripheral)
- Pyrimethamine 200mg loading, then 50 OD
- Sulfadiazine 1000mg 6H
- LEUCOVORIN 10-25mg OD
- — — Combination of all three for 6 weeks

CNS LYMPHOMA

- Typically single
- can consider biopsy, CSF PCR for EBV DNA is +ve in CNS Lymphoma

CRYPTOCOCCUS

- – – MC fungal in HIV
- – – Meningitis, meningoencephalitis
- when CD4 count is below 100
- CSF agglutination for cryptococcal antigen
- treatment *INDUCTION* with liposomal amphotericin and Flucytocine 2 weeks , then *MAINTENANCE* with Fluconazole

DEMENTIA

MULTIFOCAL LEUKO ENCEPHALOPATHY

AIDP (LIKE GBS)

PERIPHERAL NEUROPATHY

2. √ ORAL AND EYES

CANDIDIASIS

- Fluconazole 100-200mg OD for 14-21 days

CMV RETINITIS

- Perivascular hemorrhages

- Valganciclovir oral 900mg BD - 21 days then OD for maintenance
- – – For severe and vision threatening – ADD INTRAVITREAL Ganciclovir 2mg injection, or FOSCARNET 2.4mg injection for 5-7 days
- GANCICLOVIR 10mg/kg/daily, divided in two doses, for 21 days, then 5mg OD

3. √ GIT

- Esophagitis
- NASH
- more risk of acquiring Hep B, C (and if +ve, B and C are more virulent)
- Cholecystitis, Cholangitis
- Enterocolitis

4. √ RENAL (HIV NEPHROPATHY)

- Nephrotic proteinuria
- Kidneys large
- FSGS

5 √ ENDO

- Hypogonadism
- Adrenals also effected

6. √ # HEMATOLOGICAL

1. Anemia
2. Thrombocytopenia
3. Leukopenia lymphopenia
4. Lymphoma
5. Pancytopenia

6. √ SKIN

HERPES SIMPLEX

- Acyclovir 400mg TDS, 10 Days
- Valacyclovir - 1gm BD, 7 Days
- Famcyclovir - 500 BD, 7 Days
- – – if Acyclovir resisten, then FOSCARNET 40mg/kg IV 8H

HERPES ZOSTER

- Valacyclovir - 1gm BD, 7 Days
- Famcyclovir - 500 BD, 7 Days
- – – if Acyclovir resisten, then FOSCARNET 40mg/kg IV 8

STAPH AUREUS

- Fruncles, Abscess, Folliculitis, Bullous

MUSCULOSKELETAL

- Arthritis +/- effusion (usually large joints)
- Osteoporosis
- Myopathy

MALIGNANCY

1. Kaposi (HHV-8)

- Puprple, Palpable, non blanching
- Eyelid, conjunctiva, Pinna, Palate, Toes
- Pulmonary - cough, dyspnea, Hemoptysis
- GIT - Bleed
- – usually don't require treatment and improves with ART
- – *AT INITIATION OF ARR, IT MAY MANIFEST OR MAY AGGRAVATE TRANSIENTLY*

2. Non Hodgkin (Diffuse Large Cell B Lymphomas)
3. Hodgkin
4. Anal dysplasia and sq cell CA

HCV

1. Poor predictors

- Obesity, Metabolic Syndrome
- Alcohol, fibrosis
- co infection hbv, hiv

2. Labs

- anti HCV, RNA or core Antigen, LFT, CBC

3. Treatment

- ***DRUGS***
- **(N5a)** - Sofobovir
- **(N5b)** - Daclatasavir, Velpatasavir, Pibrentasavir
- **(N3,4)** - Glecepravir, Voxalaprevir
- – Compensated
- Sofo + velpa x 12 weeks
- Glicaprevir 300mg - prebentasvir 120mg x 8 week (Treatment experienced then 12 weeks)
- – Decompensated
- meld below 18, first treat then transplant
- Meld above 18, first transplant then treat
- sofo + valpa + riba x 24 weeks
- – Monitoring and follow up
- SVR
- 6 Monthly USG and AFP
-
- – can't give in pregnancy
- – Rituximab in Cryoglobulinemia
- – HCC - can treat hcv before or after transplant
- ***HCV with renal*** - GFR below 30 - sofo and valpa
- ***HCV and HBV*** - treat both
- HBsAg but DNA negative - DAA for HCV increases risk of HBV reactivation, so Prophylactic rx of hbv and continue for 12 week after hcv
- ***TB*** - ideally, first complete the ATT
- ***HCC*** - if LT not possible, generally cancer treatment modalities (resection, ablation, TACE etc) take preference and then give DAA
- if on LT list and waiting time more than 6 months, first treat HCV
- if already LT done, now treat with sofo valpa
- **Treatment failure with sofo valpa** - then re treatment with sofo + valpa + voxilaprevir
- – – *"**EXTRAHEPATIC MANIFESTATION**"
- Hypothyroid
- Insulin resistance and DM
- Cryoglobulinemia
- Membranous glomerulonephritis
- Lichen planus
- NHL
- Depression

HBV

- – Screening
- sAg
- also sAb
- – Viral load, eAg, LFT, Fibroscsn, elastography
- – HDV

1. DNA level

- in eAg +ve - above 20k
- in eAg -ve - above 2k

2. .
3. .

ACUTE

- core IgM - persist upto 12 weeks
- usually settle in 3-6 Months
- treat if Acute liver failure, on immunosuppressents, immunocompromised,
- – Chronic HBV infection
- – Chronic HBV hepatitis
- – LIFELONG TREATMENT – Cirrhosis, family history of hcc
- – *TREATMENT END POINT*

1. DNA load reduction
2. ALT normalizes
3. eAg clears , anti HbE developed
4. HbSAg disappears

- ***MONITORING***
- DNA, ALT 3 monthly
- when PCR negative, then 6 Monthly
- Creatinine
- Phosphate
- ***DRUGS***
- Lamivudine
- Entecavir
- Tenofovir disoproxyl fumarate
- Tenofovir alafunamide
- – renal – Entecavir is best
- – ***pregnancy***

1. meets treatment criteria - give tenofo-df , tenofo-af can't be given
2. doesn't meet treatment criteria - monitor, and from 28th week, start tenofo-df to reduce risk of fetal transmission

- ***BABY***
- if copies more than 2 Lakh, risk high
- immunoglobulins + vaccine within 12 hours, then 1 and 6 Months

COMORBIDITY

- – HBV and HCV - chance of reactivation of HBV
- – HBV and HIV - already on HAART, give peg or adefovir
- – if now starting HAART, HAART should contain Lamivudine and adefovir
- – immunocompromised or taking treatment Monoclonal antibodies – and patient HBsAg positive - start HBV treatment and continue till 6 months after stopping Monoclonal

POST EXPOSURE MANAGEMENT

1. Response adequate – do nothing
2. Response inadequate - give booster
3. Non-Responsder – HVIG + Vaccination
4. Unvaccinated – HVIG + Vaccination

TB

RISK FACTORS

- Endemic areas resident or travel
- malnutrition
- immunocompromised *(DM, HIV, STEROIDS, TNF INHIBITORS, OTHER IMMUNOSUPPRESSANT THERAPY)*
- poverty and overcrowding
- silicosis, smoking, Gastrectomy

RISK FACTORS OF RESISANT TB

- Resident or travel of areas of resistant TB
- contact with MDT patient
- Unsuccessful previous therapy
- Treatment defaulter

PRIMARY

- Airborn droplets inhaled - enter alveoli - escape alveolar macrophages bactercidal mechanisms - lymphatic and hematogenous spread — *IN MOST CASES, PROCESS IS CONTAINER AT THIS STAGE, LESION SURROUNDED AND BORDERED OFF BY LYMPHOCYTES AND MACROPHAGES IN A GRANULOMA* – infection controlled but not eradicated
- Apx 10% progress to active infection

LATENT

- 90% of primary infection goes into latent phase. No infection, no transmission
- Risk of reactivation if immunocompromised or comorbidity

DEFINITIONS

- – Case - when diagnosis has been made
- micobiological - smear, culture, geneXpert, line probe assay
- Clinical - clinical and xray diagnosis
- – NEW - never took ATT or took for less than 1 month
- – Previously treated - in past, took ATT of atleast 1 month
- Relapse - group of treated patien, who was declared CURED at end of treatment
- Failure - took ATT but not cured
- Lost to follow up
- Outcome unknown

RESPONSE

- CURED
- Treatment completed
- Treatment failure

RESISTANCE CLASSIFICATION

- Mono - 1 of first line
- Poly - more than 1 of first line, other than R.I.
- MDR - atleast R and I
- XDR - R , I + All Quinolones + 1 injectable
- RR

TYPES

- pulmonary
- Extrapulmonary
- disseminated
- Miliary

TESTS

- Sputum induction (with 3% Hypertonic saline)
- Felxible bronchoscopy with washing
- transbronchial biopsy (can show granuloma)
- Blood culture (usually negative, but positive in 50% who also have HIV) — *IN HIV + , Blood and urine culture should be done*

PLEURAL

- Biopsy (60)
- Fluid Culture (30-60%)
- Culture of 3 pleural samples + Pleural biopsy (90%)
- Fluid ADA above 70

LATENT

- these tests can't distinguish active vs latent
- may be false positive or negative
- should not be used to exclude active TB

1. PPD

- 0.1ml of purified protein derivative
- after 48-72 hours, transverse diameter is measured
- √ More than 5
- √ More than 10
- √ More than 15

2. IGRA

- CD4 LYMPHOS MEDIATE RELEASE OF INTERFERON GAMMA.
- IGRA test measure this release in response to TB Antigens (these antigens are not present in BCG Vaccines , hence IGRA is superior to PPD in vaccinated ppl)

TESTS

1. Xpert MTB/RIF assay (85 sn, 98sp) - sputum, csf, gastric lavage, pleural 71 sn, ascitic, node tissue 100% Sn, synovial fluid
2. Sputum AFB (or node tissue)
3. culture (definitive diagnosis) - takes 2-3 weeks
4. Drug susceptibility testing (line probe assays, PCR sequence)
5. Imaging . CXR (Upper lobe infiltrate, cavities, nodules, mottling, lower lobe in imunocompromised)
6. CBC
7. INFLAMMATORY MARKERS

- – *test to identify latent* doesn't differentiate between infection and active disease
- – false negative in imunocompromised, or extensive
- – false positive in non tb mycobacterium, vaccination, sarcoid

IMAGING

1. X-RAY

- – – Typical finding is upper lobe infiltrates. √ *LOWER LOBE INVOLVEMENT OCCURS IN ELDERLY AND IMMUNOCOMPROMISED*
- – – Healed – Upper lobe dense opacities with or without fibroscarring
- unilateral infiltrate, hilar or mediastinal Lymphadenopathy, atelectasis

2. HRCT

TREATMENT

NEW CASES

- (2HRZE/6HR)
- Sputum after 2nd, 4th, 6th

PREGNANCY

- IRE for 2 months
- IR for 7 Months
- – – Nursing is not contraindicated with first line ATT

RETREATMENT

- preferably, should be decided by drug resistance
- in general (3HRZE/5HRE)
- sputum after 3,5,8

RETREATMENT FAILURE

- drug susceptibility testing and refer for MDR

LATENT

1. Isoniazid daily for 9 Months
2. Rifampicn 600 Daily for 4 Months
3. IR daily for 3 months
4. Isoniazid 15mg/kg + Rifapentin 20-30mg/kg weekly for 3 months

COUNSELING

- it is curable in 95%
- Not spread by eating or sex
- wear mask, spit in pot, cough on elbow
- – Treatment
- 30 minutes bbf
- Urine will turn red-yellow, Anorexia, arthralgia
- some may develop side effects
- report any vision, color vision probelm.
- report any jaundice, numbness
- report any joint pain, rash
- report ototoxicity

TREATMENT MONITORING

- Monthly Sputum smear and culture, untill 2 consecutive negatives, and then repeat at end of treatment
- for MDR, monthly sputum smear and culture, throughout the course duration
- if at 3 months, culture still positive or symptoms persisting – rule out non adherence and do resistance testing

RESTARTING AFTER HEPATITIS

- Start one by one - R, then I, then pyrazinamide
- or Day 1, 20 - 25% dose, Day 2 50% , Day 3 full dose
- if R, I can't be given – give Ethambutol, strepto, Quinolones for 18 Months

CLD

- Hepatotoxic (pyra >> Rifa > INH) (strepto and Ethambutol are safe)
- can use SEQ 18 month or SHE 2 month + HE 8 month

1. 2 Hepatotoxic regime

- HRE9
- 2HRES/6RI
- 9 REZ

2. 1 Hepatotoxic regime

- 2IES/10IE

3. No Hepatotoxic drug

- 18-24 Months
- SEQ

CKD

- 2HRZE/4HR
- but ZE dose is reduced

RESISTANCE

ISONIAZID RESISTANT

- 6 Months RPE
- or 12 months RE

MDR + QUINOLONES RESISTANCE

- 9-12 months BPaL

MANTOUX

- 0.1ml, intradermal injection
- look for induration at 48- 72 hours
- more than 10 is +
- more than 5 is significant in immunocompromised or in contacts
- it is for presence of infection, not for disease

TYPICAL DRUGS

I (5-10) MAX 300

- I . idiosyncratic Lupus
- N . Neuropathy Peripheral
- H . Hepatitis

R (10-15) MAX 600

- R . Red urine, rash
- I . Infection (hep, git)
- F . Flu

E (15-20) MAX 1500

- E - eye
- (neuritis, color vision)

P (25-35) MAX 2000

- Purizinamide (uric acid, Hepatotoxic)

MDR

1. SHORTER

- 9 month
- Intensive 4 month (7 Drugs)
- semi intensive next 2 month (5 Drugs)

- continuation till total of 9 months (4 Drugs - *PLEC*)
- *(HE PLEC B)*
- INH
- ETHIONAMIDE
- PYRAZINAMIDE
- LEVOFLOXACIN
- CLOFAZIMINE
- ETHAMBUTOL
- Bedaquiline
- – – (all for 4 months)
- – – (for month 5 and 6, INH and Ethionamide stopped)
- – – (from 7th month, beda also stopped, only Pyra, Levo, Ethambutol, Clofazimine continue till 9month)

2. MDR Longer regime

- 18 months
- – *(BCCLL)*
- Bedaquiline
- Clofazimine
- Cycloserine
- Linezolid
- Levofloxacin
- – (beda stopped after 6 month)
- – (linezolid dose reduced to 300 after 6 month)

XDR

- Bedaquiline (400 od for 2 weeks, then 200 , 3/week)
- pretomanid 200 od
- linezolid 600 od

MALARIA

- parasite infection
- endemic in south America, Africa, Indian subcontinent
- – *SPOROZOITES* –> enter heoatocytes –> Liver sheds *MEROZOITES* –> MEROZOITES go into RBCs –>>
- – *VIVAX AND OVALE ALSO FORM HYPNOZOITES IN LIVER. THESE HYPNOZOITES ARE RESISTANT TO USUAL THERAPY*
- – in endemic areas, people develop immunity against malaria and this prevent them from having severe cases. in these areas, kids and pregnant females are more likely to present with severe illness.
- **Fever**
- high grade, chills, rigors, sweating and then afebrile period.

- initially irregular pattern
- later on, 48H cycle (Vivax and Ovale) or 72H cycle (Malariae)
- **Falciparum**
- All severe malaria are almost always Falciparum
- infect RBCs of all ages, and ebables RBCs passage from spleen without destruction
- **VIVAX**
- Mild, but in some cases may be severe
- **Ovale, Malariae**
- **Symptoms**
- Headache
- Myalgias, arthralgias
- Fever
- Nausea, Vomiting, Pain
- Cough
- Seizures
- **Clinical**
- Anemia, jaundice
- Splenomegaly, Mild Hepatomegaly
- **Severe**
- peripheral parasitemia more than 5%
- organ dysfunction
- – – CNS (Altered sensorim, seizures), CIRCULATION (Shock), HEMATOLOGICAL (Anemia, bleed, DIC, Hemolysis), RESP (Non cardio genic pulmonary efema, ARDS), RENAL (AKI), HEPATIC DYSFUNCTION, METABOLIC (Hypoglycemia, Acidosis)
- **LABS**
- CBC
- GIEMSA stained thick and thin smears
- – – Peripheral film (single ring form - VIVAX , multiple ring form - FALCIPARUM)
- circulating plasmodium antigens
- PCR
- – **complications**
- cerebral malaria
- black water fever
- renal failure
- hypoglycemia
- splenomegaly (tropical, now a days called hyper reactive Splenomegaly)
- ARDS
- **TREATMENT**

1. Non Falciparum

- Chloroquine is universal first line (when resistance suspected, then treated as Falciparum regime)
- In Vivax and ovale, after chloroquine, for eradication of hepatic HYPNOZOITES, give Primaquine OD for 14 days

2. UNCOMPLICATED FALCIPARUM

- Treated with combination of ARTEMESIN and one partner drug.
- – – ARTEMESIN with 2 partner drugs has better results
- – – PARTNER DRUGS (LUMEFENTRINE, MEFLOQUINE, PYRONARIDINE)

3. SEVERE

- iv Artesunate 2.4mg/kg is first line
- – – if unavailable, then iv Quinine or iv Quinidine or oral , till availability of iv artesunate
- supportive (dextrose fluid, electrolyte balance, Dialysis, respiratory and hemodynamic support.
- exchange transfusions
- **PROPHYLAXIS**

1. Weekly

- Chloroquine – in areas with no resistance
- MEFLOQUINE – in areas with chloroquine resistance

2. Daily

- – (in areas of multi drug resistance)
- MALARONE (Atovaquone + Proguanil)
- Doxycycline
- **Points**
- most antimalarials act against erythrocytes stage
- – Primaquine and Tefanoquine acts against Hepatic parasites

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DENGUE

- Flavivirus, by Aedes mosquite
- 4 genotypes, (infection with 1 doesn't produce immunity against others)
- – fever in a person who has travelled to endemic area in last 14 days

DF

DHF

- abd pain, vomit, bleed - gi, hematuria, epistaxis etc
- plasma leakage (fluid in cavities, Hemoconcentration up by 20%, Low albumin)
- PT, APTT

DSS

- Shock, weak pulse, low BP, cold periphery, narrow pulse pressure
- low urine output,

LABS

1. CBC (Neutropenia, Thrombocytopenia, Hemoconcentration)
2. LFTs
3. NS1 and PCR – positive in couple of days
4. IgM and IgG - positive after 1 week

COVID

- .
- .

- EBV –> IMN, Lymphomas and Lymphoproliferative, Nasopharyngeal CA

EBV (IMN)

- Malaise, fever, and (exudative) sore throat
- Lymphadenopathy, splenomegaly, occasionally, a maculopapular rash, Palatal petechia
- Lymphocytosis with Atypical large lymphocytes in blood smear
- – – TEST
- the heterophile sheep cell agglutination [HA] antibody tests
- correlated mononucleosis spot test [Monospot])
- – (These tests usually become positive within 4 weeks after onset of illness)
- Complications
- – √ Splenic Rupture, Acalculous cholecystitis, Fulminat Hepatitis
- hepatitis, myocarditis, pneumonia, neuropathy, encephalitis, airway obstruction from adenitis, hemolysis, Thrombocytopenia
- – – *TREATMENT*
- for pain and fever
- Bed rest and avoidance of contact sports
- – ? – Acyclovir usually not given

- – Steroids used for Hemolytic anemia, Thrombocytopenia or Airway obstruction due to enlarged lymph nodes

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CMV

1. IN INMUNO- COMPETENT

- IMN like illness with negative antibody test

2. IN IMMUNOCOMPROMISED and POST TRANSPLANT

- CNS - Encephalitis, Radiculopathy
- EYE - CMV Retinitis
- RESP - Pneumonia, higher chance of PCP
- GIT - Esophagitis, Gastritis, Hepatitis
- – – √ *TREATMENT*
- iv GANCICLOVIR 5mg/kg BD , till 1 week apart 2 PCR negative (usually become negative after 2 weeks treatment, so in that case total duration is 3 weeks)
- – – alternative is ORAL VALGANCICLOVIR 900mg BD
- – – PNEUMONIA - iv Ganciclovir BD 21 days, then OD 4 weeks + CMV immunoglobulins 2/week for 4-6 weeks
- – – √ RESISTANT CASES — FOSCARNET or CIDOFOVIR

HSV

- HSV 1 - oral ulcers, HSV 2 - Genitalia ulcers
- Variable interval between exposure and symptoms
- Can be primary, or reactivation which can occurs many years later

1. Mucocutaneous

- oral and genital ulcers
- Painful

2. Eye

- Keratitis, uveitis, keratoconjunctivitis sicca

3. CNS

- Encephalitis (Temporal lobe predilection)
- Bell’s Palsy

4. Esophagitis

- Small and deep ulcers

5. Hepatitis

- – *LABS*
- Real Time PCR
- Tissue biopsy from lesion (for example esophagus)
- – √ *TREATMENT* √
- Acyclovir, Famcyclovir, Valacyclovir
- Foscarnet
- – – Oral Acyclovir – 400mg TDS, or 200 mg 5 times daily
- – – iv Acyclovir – 10mg/kg TDS
- – – FOSCARNET – INDUCTION (90mg/kg in 2 hours, BD for 3 weeks) and MAINTENANCE (90mg/kg in 2 hours OD)

HHV-3

- VARICELLA Vaccine - Live, attenuated, quadrivalent or single Antigen – (Post exposure prophylaxis – Varicella Zoster Immunoglobulin — then vaccine delayed for 5 Months)
- Herpes Zoster Vaccine - Shingrex , can be given even if previously exposed to HZV

HZV VARICELLA

- pruritic rashes on scalp, face, trunk, then abdomen
- become vesicles in 2-3 days
- Fever, High ALT, Low WBC and low platelets
- Usually mild and benign course
- More severe in elderly and immunocompromised
- sometimes Meningoencephalitis, Pneumonia
- Ramsay hunt, Cellulitis, necrotizing fasciitis
- – – TREATMENT
- oral Acyclovir 400mg 5 times/day for 5 days – √ (start within 24 hours of rash onset)
- Severe or complications – IV Acyclovir +/- steroids

HZV ZOOSTER

- Reactivation of Varicella
- Cluster of vesicles, in dermatomal distribution, typically unilateral.

- if lesion covers 3 or more dermatomes - called Disseminated HZV
- Pruritic
- severe burning pain
- – – *COMPLICATIONS* could be anything from Head to Toe
- Post Herpetic Neuralgia, Peripheral motor Neuropathy, Transverse myelitis, Encephalitis, GCA, Unilateral ophthalmoplegia
- Ramsay hunt, Cellulitis, necrotizing fasciitis, Encephalitis, Pneumonia
- — — TREATMENT
- VALACYCLOVIR and FAMCYCLOVIR are preffered over Acyclovir, because of less frequent dosing and because therapeutic levels remain for longer duration (None of these prevent post Herpetic Neuralgia)
- for severe cases, iv Acyclovir
- steroids in immunocompetent patients - fastens the recovery

POST HERPETIC NEURALGIA

- Gabapentin, TCA, Lidocaine patches
- TENS

TOXOPLASMOSIS

-

BORRELIOSIS - LYME - TICK BORN SPIROCHETE

- Mice, Deer, Sheep, cattle, horse, dog

1. Early localized infection

- Erythema Migrans Rash
- headache, neck stiffness, Myalgia
- Fever +/-

2. Early disseminated infection

- After 1-6M - Aseptic Meningitis, Neuropathy (cranial and Peripheral – Most common is Facial) , polyneuropathy (like GBS)

3. Late disseminated infection

- After months to years

- Skin, musculoskeletal and CNS
- chronic myelinitis, Encephalopathy, Demyelination
- – *INVESTIGATION* - antibodies to borrelia burgdorferi
- – *TREATMENT*

1. Mild

- Doxy 100mg BD 21 days (Amoxicillin 500 TDS in pregnancy)

2. SEVERE (Menigitis, Facial palsy, Spinal cord)

- CEFTRIAXONE 2gm OD or CEFOTAXIME 2gm TDS for 21-28 Days
- arthritis - 28 days (may repeat for another 28 days)

LEPTOSPIROSIS - ZOONOTIC TREPONEMA

- Swimmers, Sewage, fish form, sanitory

1. Anicteric Leptospirosis

- biphasic disease (Fever, headache, myalgia if calf muscles) then afebrile for 2-3 days and again febrile
- may develop aseptic meningitis

2. Icteric Leptospirosis (WEILS DISEASE)

- Sewage, fish form, sanitory
- Fever, flu with dry cough
- (*RENAL FAILURE, JAUNDICE, Liver failure in 10%, Thrombocytopenia, meningism*)
- Hemorhhagic pneumonia, Hypotension
- subconjunctival hemorrhage, high CPK
- – – LABS
- High WBC
- deranged LFTs and RFTs
- √ Hemorrhagic Pneumonia – DIC lab picture, high PT, APTT, D-Dimers and low fibrinogen
- agglutination test by Elisa
- PCR for DNA (from Blood, urine, CSF, vitreous fluid)
- – *TREATMENT*
- Doxy 100mg BD for 7 days
- (if severe then iv Ceftriaxone 1gm OD)

BRUCELLOSIS

- Gram -ve aerobic coccobacilli Zoonotic, chronic Granulomatous disease
- Sheep, cattle, pigs
- – (*fever, hepatosplenomegaly, lymphadenopathy, sacroiliitis*)
- – *INVESTIGATION*
- leukopenia, thrombocytopenia
- *GOLD STANDARD - MARROW ASPIRATE AND CULTURE* -(blood culture not +ve in all)
- Rose bengal for screening and then Serology is diagnostic
- – *TREATMENT* - Doxy and Rifampicin for 6 weeks

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